an excited frame and pan assembly along with a wire belt conveyor that conveys food product.

BRIEF DESCRIPTION OF THE DRAWINGS OF THE PREFERRED EMBODIMENTS

FIG. **1** is a perspective view of a first embodiment of the instant invention including an excited frame assembly and an upper elongate pan assembly, without the recycle assembly.

FIG. **2** is a cut-way perspective view of a portion of an exemplary upper elongate pan assembly.

FIG. **3** is a side view of an exemplary excited frame assembly comprising the motorized vibratory assembly, the spring assemblies and the lower pan.

FIG. **4** is a perspective view of an exemplary coating recycle assembly.

FIG. **5** is a perspective view of an exemplary embodiment of the instant invention including the excited frame assembly, the upper elongate pan assembly and the coating recycle assembly.

FIG. **6** is a partial cut-away perspective view showing an exemplary transverse funnel and tray assembly for funneling screened coating into the coating recycle assembly.

FIG. **7** is a side view of a second embodiment of the instant invention including a vibrating assembly, a wire conveyor belt assembly, and a coating recycle assembly.

FIG. **8** is an isometric view of a portion of the vibrating assembly of FIG. **7**.

FIG. **9** is a front view of portion of the vibrating assembly of FIG. **8**, showing an upper pan, a middle pan, a lower pan, and a scalping pan.

FIG. **10** is a cross-sectional view of FIG. **9** through line **10-10**.

FIG. **11** is an isometric view of FIG. **10**.

FIG. **12** is a side view of a portion of the vibrating assembly and the wire conveyor belt assembly of FIG. **7**.

FIG. **13** is a close up view of a portion of FIG. **12** designated by the circle of FIG. **12**.

FIG. **14** is an isometric view of the scalping pan of FIG. **9**.

FIG. **15** is a side view of the wire conveyor belt assembly of FIG. **12**.

FIG. **16** is a perspective view of wire conveyor belt assembly of FIG. **15**.

FIG. **17** is a perspective view of the second embodiment of the instant invention of FIG. **7**.

FIG. **18** is a perspective view of the coating recycle assembly of FIG.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Construction and Operation of a First Preferred Embodiment

As shown in FIG. **1**, a first preferred embodiment of the invention includes an excited frame assembly **10** and an upper elongate pan assembly **12**. The upper elongate pan assembly is mounted to the excited frame assembly **10**.

The upper elongate pan assembly **12** includes an upper pan **14** having sidewalls **16** to contain a coating, such as free-flowing aggregate breading. The assembly **12** further includes an upper transverse distribution means **18** preferably a tapered, angular, wall-like structure to facilitate distribution (i.e., transversely) of coating across the distal portion of the upper pan **14**.

As shown in FIG. **2**, a lip **20** is located at the distal end of the pan **14** to facilitate transfer of the coating from the upper pan **14** to a waterfall distributor member **22**. The waterfall distributor member **22** includes a proximal lip **24** to direct aggregate coating leaving the distal end of the pan **14** toward a distribution surface **26** of the member **22**. The distribution portion **26** includes 2 rows of angular slots **28**, **30** oriented in opposition to further facilitate transverse distribution of coating aggregate. The slots **28**, **30** may be sized to accommodate various or particular free-flowing aggregate coatings. The member **22** also includes a distal lip **32** to facilitate movement of coating to the excited frame assembly **10**.

As shown in FIG. **1**, the upper elongate pan assembly **12** further includes a distributor subassembly **34** comprising a distributor **36** for receiving coating. The well **36** includes 2 prongs **38**, **40** for breaking up unsuitably large clumps of coating that may form in the distributor **36** due to, for example, ambient moisture. The subassembly **34** further includes 2 channels **42**, **44** for transferring coating from the distributor **36** to the excited frame assembly **10**. The subassembly **34** still further includes a trough **46** for transferring coating from the distributor **36** to the upper pan **14** surface.

The excited frame assembly **10** includes a lower pan **48** having a screen **50** located in the distal portion of the lower pan **48**. A transverse funnel **1001** and tray **99** (see also FIGS. **1** and **6**) are mounted to the lower pan **48** under the screen **50** to funnel screened coating into a lower length **104** of a drag-chain recycle channel **106**. The lower pan **48** further includes 2 sidewalls **56**, **58** that further include angled sidewall members **60**, **62**, and a back wall **57**. At the proximal end of the lower pan **48**, 2 wells **52**, **54** are positioned to accept the distal end of the respective channels **42**, **44**. A lower transverse distribution means **64**, preferably a tapered, angular, wall-like structure, facilitates transverse distribution of coating across the proximal portion of the lower pan **48**.

The lower pan **48** further includes a soft roller assembly **66** adapted to be rotationally actuated by 2 opposing ratchet assemblies **68** (opposing assembly **80** partially shown in FIG. **5**) in clockwise rotation, which is desirable (as shown) to facilitate longitudinal movement of the coating and food products. The soft roller cylinder **70** is constructed from materials known in the art, and it pats coating applied to the top surface of the food products from the upper elongate pan assembly **12**. Each of the opposing ratchet assemblies **68**, **80** includes a first bracket **72** rotationally mounted to the sidewall **58** and rotationally mounted to a second bracket **74**. The second bracket **74** is rotationally mounted to a shaft **76** which is fixed with respect to the soft roller **70**. The shaft **76** is mounted to the side of the channel **108**. (See FIG. **5**) A ratchet **78** is incorporated in both ratchet assemblies **68**, **80** within the mounting between the second bracket **74** and the shaft **76** to provide for clockwise actuation of the soft roller **70**. A counter-weight **75** and mounting assembly **77** are provided to facilitate actuation of the ratchet assembly **68**, **80**.

Preferably, the ratchet **78** is one-way locking steel with needle-roller bearings. Actuation of the ratchet assembly **68** is provided by the vibrational movement of the excited frame **10**. Another ratchet assembly **80** (shown partially in FIG. **1**) is provided on the other sidewall **56**. A transverse air manifold **82** is mounted to the sidewalls **56**, **58** to blow loose coating from the top of coated food product onto the screen **50**.

As shown in FIGS. **1** and **3**, the excited frame assembly **10** further includes an excited frame **84** mounted to the sidewalls **56**, **58** of the lower pan **48** by way of a plurality of parallel-epiped arm spring assemblies **86**. The lower pan **48** includes a declining bottom **49** between the back wall **57** and the proximal end of the screen **50**. Preferably, the bottom **49** is at a decline in the range of 2 to 5 degrees (preferably 3°) below the horizontal x-axis. The lower pan **48** also includes an